

# NEWSLINE

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## LAB ANNOUNCEMENTS

# Comment sought on draft RFP to manage Laboratory

The U.S. Department of Energy's National Nuclear Security Administration is seeking comments on a draft Request for Proposal (RFP) for the competitive selection of a management and operating (M&O) contractor for the Laboratory.

NNSA seeks offerors with the capability to manage world-class science and achieve excellent operations and management performance. Key elements of the proposed contract included in the draft RFP are:

- Unique contract clauses intended to redefine the federal-contractor relationship, to transition to industrial standards and best practices, to capitalize on private sector expertise, and to increase contractor accountability and efficiencies.

- An "award term" provision to permit extension of the resulting contract for incremental periods up to 13 years beyond the initial seven-year term as an incentive for superior performance.

- A requirement to retain LLNL's current workforce (excluding the Laboratory director and the most senior managers) and provide comparable pay and benefits.

The draft RFP's evaluation criteria include the potential contractor's

## Web provides transition resource

The draft RFP is publicly available at the NNSA Service Center's LLNL M&O Contract Competition Website: <http://www.doeal.gov/LLNLCompetition/Default.htm>. Responses to questions and other information about the draft RFP will also be posted to this site.

In response to the release of the RFP, the Laboratory has launched a special Website, along with a message from Lab Director George Miller, to provide information to employees throughout the transition process.

The site is located at <http://transition.llnl.gov> and will be posted to the Lab portal page.



capability to successfully manage world-class scientific research and development, the capability to achieve excellence in Laboratory and business operations, the proposed organization structure; the proposed key personnel, including the proposed Laboratory director, and past performance.

"UC Laboratory Management staff are reviewing the draft request for proposals, and will submit comments to the U.S. Department of Energy after a thorough review is completed," said Robert Foley, University of California vice presi-

dent for Laboratory Management. "We will not be commenting on any specific aspects of the proposal at this time, other than to say that we are very pleased that the Department of Energy recognizes the value and expertise of LLNL employees and the importance of retaining these world-class scientists and other Laboratory workers."

Foley added that, "the final decision regarding competition will be made by the University of California Board of Regents. Should the board decide to compete, I believe we will be in excellent posi-

tion to submit a strong and winning proposal."

NNSA will hold a presolicitation conference for prospective offerors in Albuquerque, NM during the comment period, followed by a Laboratory site tour. The presolicitation conference date and location will be posted on the Website listed above. The draft RFP comment period will be open until June 5. The final RFP will be issued after comments are considered.

The draft RFP provides that proposals will be due to NNSA 60 days after the final RFP is issued. Proposals will be reviewed by NNSA's Source Evaluation Board, comprised of NNSA technical and business experts, who will provide a report of findings to the NNSA Source Selection Official. The current LLNL M&O contract expires Sept. 30, 2007. NNSA intends to select a contractor in the winter of 2006/2007 and begin full contract performance on October 1, 2007.

The contractor will be required to provide the intellectual leadership and management expertise necessary and appropriate to manage and operate the Laboratory and to accomplish the missions assigned by NNSA.

# Computer simulation provides cosmic insight

Scientists have recently come to believe that the universe is "mostly other stuff, dark matter and dark energy."

Advanced supercomputing is helping solidify that paradigm, according to UC San Diego Professor Michael Norman.

"We astrophysicists don't just spin fairy tales; we do have the real universe that we have to answer to," Norman said. "What is so interesting about the development of this field is that, as our computing power has improved, as our models have gotten more complex, we have been better able to make direct connections to observations."

Norman spoke at the Lab recently as part of the Director's Distinguished Lecturer Series.

Norman, who began his career at LLNL as a graduate student working under the tutelage of Jim Wilson, commented that with the technology "we now employ, we are able to compare in great detail the quantitative predication of our models with observations coming from our telescopes."

"I found it mind-blowing that one could take the equations of physics, put them into a computer and watch it happen," he said. The ultimate goal is to try to simulate the universe at its smallest level of complexity.

Norman was clear that scientists don't yet completely understand how baryons (the stuff that makes up the visible



Michael L. Norman

universe, from stars down to humans) came into existence. "Baryons and antibaryons would annihilate and leave nothing but radiation, but somehow a slight asymmetry was created that left us with a net baryon number in the universe," he said.

The next of several steps in the creation of the universe is referred to as the "precision era," where with the assistance of advanced computing, "we can begin to make predictions and compare to measurements." It was during this period that the light elements were formed through fusion and hydrogen, helium and lithium were created. The cosmic structure began to form and the first galaxies began to exist.

While baryons make up only 4 percent of the mass of the physical universe, dark matter and dark energy make up the remainder and are considered responsible for the existing gravitational pull. Interestingly, only 10 percent of those baryons can currently be inventoried. "What we see are islands of baryons, galaxies," according to Norman, who is now moving forward into new frontiers of understanding the universe due to enormous advances in scientific computing. Norman is now including baryonic physics into the simulations to understand not only where the galaxies are and the ages of the stars that constitute them, but to discover where the "missing" 90 percent of the baryons are.

## All-hands meetings kick off on Monday



George Miller

Director George Miller will kick off a regular series of all-hands meetings at 11 a.m. Monday, May 15, in the Bldg. 123 auditorium. Miller will discuss the LLNL contract Request For Proposal, provide updates on Lab programs and review recent milestones. The talk will be broadcast live on Lab TV, Channel 2.



## IN PROFILE

# Barbara Peterson brings experience to new transition role

By Anne M. Stark  
Newsline staff writer

As a kid growing up in Redondo Beach, she and one of her older brothers would practice stunts on a surfboard.

As a teen, she volunteered at a free health clinic and staffed a suicide hotline.

As a college student, she worked as a waitress and phlebotomist to put herself through school.

Barbara Peterson has always wanted to help people. And now she is helping the Laboratory usher in a new era.

Peterson joined the Lab in 1993 after a career in operations and business administration at TRW. While at TRW, she worked as business manager for the Brilliant Pebbles program, a ballistic missile defense system designed to deploy a 4,000-satellite constellation in low-Earth orbit that would fire high-velocity projectiles at long-range ballistic missiles launched from anywhere in the world. However, the business side of the program shut down in the early 1990s and the Laboratory came looking for Peterson.

"Our customers included the science advisers that were working here at the Laboratory," she said. "They approached me. I happened to be at the right place at the right time."

So Peterson, 52, started her Lab career as operations manager for O Division, the department working on the science side of Brilliant Pebbles. But the scientific side of the program would soon end, too.

"My first job was to shut down the program. It was cancelled within a few months after I got here," Peterson said. "There's a joke that everywhere I went (within the Laboratory), something got cancelled."

However, Peterson jumped into her job upon arrival. "My functions were similar at TRW," she said. "I could be effective almost immediately. I could almost do my job from Day 1 instead of having to wait around to become familiar with the business."

Peterson went on to work on the Business Practices Implementation Committee, became deputy associate director



JACQUELINE MCBRIDE/NEWSLINE

## Barbara Peterson

for operations in Environmental Programs (now the Energy and Environment Directorate), worked on the cost-cutting initiative and became manager of finance and systems for the Atomic Vapor Laser Isotope Separation (AVLIS) project. She said her experience with private industry has really been beneficial to her Lab career.

And others agree.

"She's very sharp," said Bruce Warner, acting associate director at large, who worked with Peterson for several years in

the AVLIS program. "She communicates well and is able to work with people that have diverse backgrounds and interests. She has extensive experience in aerospace-industry projects and uses those lessons very well here at LLNL."

Most recently, Peterson served as deputy associate director for Operations in the Nonproliferation, Arms Control and International Security Directorate.

However, Peterson recently lost her companion, Tony, after a three-year battle with melanoma. She took time off of work to care for him.

"She's very dedicated to her family to the point she gave up her job to take care of Tony," said Kathy Cruz-Glasgow, chief of staff for NAI administration. "She cares a lot about people. Some people don't see that because she's so professional, but she's always well received to those who have worked with her."

"She has mentored me in various areas," Cruz-Glasgow added. "She's extremely bright in business practices. I consider her a friend as well as a colleague."

Despite the hardship of losing her partner, Peterson is looking forward to the road ahead as contract transition manager.

"Even though there's going to be angst (about the new contractor), we have the opportunity to engage early and act for the future," she said. "My plan is to continue to communicate with employees as candidly and as often as possible. I want to give them feedback so they trust me and have confidence that there are talented individuals who care about their future and the future of the Laboratory."

In her spare time, Peterson, an Oakland Hills resident, enjoys exploring archaeological sites around the world and cooking for her friends. And though the next 18 months are going to be a busy time, Peterson said: "I don't feel like my job is my life."

As she looks to what the future holds, one important component for Peterson is to contribute in a meaningful and positive way to the challenging journey ahead as the Laboratory moves into a new era.

# D'Agostino sees Lab playing a central role in weapons complex transformation

By Charlie Osolin  
Newsline staff writer

The Laboratory will play a central role in the coming transformation of the nation's nuclear weapons complex, including the development of the next generation of nuclear warheads.

That was the message Tom D'Agostino, National Nuclear Security Administration (NNSA) deputy administrator for defense programs, delivered to LLNL employees during a two-day visit to the Laboratory last week.

In his first trip to the Lab since his Senate confirmation on Feb. 17, D'Agostino toured Site 300's Building 801, (the Contained Firing Facility), the main Laboratory's Terascale Simulation Facility and the National Ignition Facility, and received briefings on the Laboratory's weapons programs.

During all-hands meetings at Site 300 and Bldg. 123 auditorium with Lab and Livermore Site Office employees, D'Agostino firmly refuted speculation that NNSA's proposed streamlining of the nuclear weapons complex might lead to a reduced role for Livermore or the elimination of one of NNSA's two nuclear weapons labs

(Livermore and Los Alamos).

"Livermore has a tremendous, bright future in this area," he said, and is a "key component of the future of the nuclear weapons program and the national security (area) as a whole.

"I firmly believe (in) the value of having two strong physics laboratories, competing on designs, challenging each other," he said. "This Laboratory is known for its innovative thinking, and you don't get that with one physics laboratory. Knowing that you have another organization out there that is more than happy to take up the work if you don't, spurs you on. . . The country is much better off with two physics laboratories."

D'Agostino reviewed his recent congressional testimony in which he outlined NNSA's "Complex 2030" plan to establish a smaller, more efficient nuclear weapons complex able to respond to future challenges, with special nuclear materials



Tom D'Agostino

consolidated in fewer sites.

He said the plan was intended to realize President Bush's vision of a "credible nuclear deterrent with the lowest-possible number of nuclear weapons, consistent with our national security needs."

Achieving that "dramatic, compelling" vision will require significant changes in the size, composition and character of the nation's nuclear forces, he said, and Livermore will play an

important role in those changes, including helping design and develop the reliable replacement warhead (RRW).

"RRW is our enabler for stockpile transformation," D'Agostino said. "But more than that, it enables us to transform the (nuclear weapons) infrastructure." The features of the RRW "allow us to use different materials, allow us to design in certain safety and securi-

ty features that will allow us to change the way we do business across the complex.

"This country has decided that we're going to have a strong nuclear weapons program. . . and I feel the best approach is the RRW strategy and transition," he said.

D'Agostino added that NNSA has been working closely with the Defense Department and is hoping to obtain the support of the joint DOE-Defense Department U.S. Nuclear Weapons Council for RRW development by the end of this year.

D'Agostino told a packed all-hands gathering at Site 300, the Lab's conventional weapons testing facility, that he couldn't predict the "exact future" of Site 300, but said the nuclear weapons enterprise of the future would be "more integrated and more interdependent." Noting that he was "quite impressed" with the equipment and facilities at Site 300, D'Agostino said, "It's wonderful to have that type of a capability in the complex."

D'Agostino's April 5 congressional testimony can be found on the Web at [http://www.nnsa.doe.gov/docs/congressional/2006/2006-04-05\\_HASC\\_Transformation\\_Hearing\\_Statement\\_\(D'Agostino\).pdf](http://www.nnsa.doe.gov/docs/congressional/2006/2006-04-05_HASC_Transformation_Hearing_Statement_(D'Agostino).pdf).



## SCIENCE NEWS

# New screening tool helps to detect explosives

By Stephen Wampler  
Newsline staff writer

**A**irport screeners, military personnel and others have a new ally in the war against terrorism — a portable, sensitive and accurate explosives detector developed by Lawrence Livermore National Laboratory researchers.

The new explosives detector, called the Easy Livermore Inspection Test for Explosives, or ELITE, is highly sensitive to more than 30 different explosives, making it one of the most effective explosive detection systems available, said John Reynolds, who led the technology's development and is the deputy director of LLNL's Forensic Science Center.

"Our goal is to develop new technology or take existing technology, make it better, and then adapt it for use in the field," Reynolds said.

Using the ELITE card, airport screeners, border patrol agents, security agents, first responders, military personnel and others can secure real-time analysis — within the space of one to four minutes — whether explosives are present, according to Reynolds.

The ELITE card was honored May 3 with a Federal Laboratory Consortium (FLC) award for excellence in technology transfer, which was presented to LLNL researchers during an awards dinner in Minneapolis.

The technology has been licensed to Field Forensics Inc., a St. Petersburg, Fla. company, and went on the market last October.

Already, the firm has picked up a host of customers, including the U.S. Army, the Royal Canadian Mounted Police, the Ontario Provincial Police, the Canada Air Marshals, the Queensland Police from Australia and others, said Field Forensics President Craig Johnson.

Orders also are pending from several military agencies, federal and state police agencies and some commercial nuclear power plants, Johnson said.

"When it was announced that the ELITE explosives detection technology was going to be made available for licensing, we jumped at the opportunity," Johnson said. "ELITE technology is exactly that which our customers have been telling us they need: It's self-contained, small, light, disposable, easy to operate and inexpensive."

Reynolds echoes Johnson's points about the ELITE card's advantages, noting the technology is light (weighing a fraction of an ounce), small (the size of a 2-inch by 3-inch index card), inexpensive (costing less than \$25, and substantially less in higher quantities) and stable (with a shelf life of about two years).

"It gives you a chance to detect explosives faster, cheaper and easier," Reynolds said. "That allows more law enforcement, military, airport security and others to have a better chance to catch the bad guys."

In Reynolds' view, the ELITE card could provide an important assist to the U.S. military in Iraq — and on other fronts. "In Iraq, it could be used for finding bomb-makers, vehicles used to transport explosives or to find anyone in the chain



JACQUELINE MCBRIDE/NEWSLINE

**Among the key developers of the ELITE explosive screening technology are (left to right): Del Eckels, John Reynolds and Peter Nunes, all of the Lab's Forensic Science Center. They are shown with some of the early ELITE prototypes and the current card version, which is resting in front on the table.**

of making improvised explosive devices."

"With great demand for travel in the industrial world, there is an increasing need for safe transportation within the United States and overseas. Significant issues involving explosives detection are cost, sensitivity and convenience. The ELITE detection alleviates all these concerns by providing a fast, reli-

able and convenient system that is easy to use," Reynolds said.

To use the ELITE detection card, the suspect surface — whether hands, a vehicle or luggage — is wiped with a swipe. The swipe is replaced into the card and a small glass vial, or ampoule, is broken. If TNT-based explosive materials are present, the swipe will change color.

If the swab remains colorless and explosives are still suspected of being present, a second ampoule is broken, again looking for a color change that would indicate the presence of other types of explosives.

Development of the ELITE technology was achieved by a team of scientists from the Lab's Forensic Science Center, in partnership with LLNL's Energetic Materials Center, under research grants sponsored by the Department of Energy and the National Nuclear Security Administration. The work started in October 2003 and cost about \$1.5 million.

In addition to Reynolds, members of the team who played important roles in the development of ELITE were: engineer Del Eckels, chemists Peter Nunes, Rich Whipple, Phil Pagoria, Marina Chiarappa-Zucca and Randy Simpson, who is also the director of the Lab's Energetic Materials Center.

"We tried many different materials for ELITE for compatibility and durability before we found the right combination," Eckels said. "Our ultimate aim was to make something as small, disposable, inexpensive and easy to use as possible."

In the process of developing ELITE, Eckels produced five generations of prototypes, with one of the last ones being a small metal instrument about the size of two butter cubes, before producing the ELITE card.

"We had to adapt the existing chemistry into a new configuration to meet the needs of ELITE — a long shelf life, sensitivity and compatibility with materials," Reynolds explained.

The Federal Laboratory Consortium for Technology Transfer (FLC) is a nationwide network of federal laboratories that provides the forum to develop strategies and opportunities for linking the laboratory mission technologies and expertise with the marketplace.

Organized in 1974 and formally chartered by the Federal Technology Transfer Act of 1986, the FLC consists of more than 700 major federal laboratories and centers and their parent departments and agencies.

## Lab technology commercialization success not just for ELITE

In addition to the Easy Livermore Inspection Test for Explosives (ELITE), scientists and engineers at the Lab's Forensic Science Center (FSC) have developed other technologies that have been licensed and commercialized.

One such technology is a portable Gas Chromatograph-Mass Spectrometer (GC-MS) unit that was licensed in 2002 to Constellation Technology, a firm located in the Tampa Bay area of Florida.

The portable unit performs the same functions as laboratory benchtop GC-MS equipment — but in a 70-pound, transportable package about the size of an ice chest.

"The advantage of this technology is that while GC-MS units are typically a laboratory analytical tool, we've essentially taken it from the laboratory into the field," said FSC chemist Peter Nunes, who oversees this technology transfer effort.

With a portable GC-MS unit, researchers do not have to transport a sample back to the laboratory, allowing analysis in the field and permitting a sample run to be completed in 20 to 30 minutes, Nunes said.

In the past, Livermore scientists have been deployed to

support the California National Guard with the portable GC-MS system at the 2003 World Series and the Democratic National Convention to provide rapid chemical analysis in case of any terrorist incidents.

The work to produce a portable GC-MS system was undertaken by engineers Del Eckels, Doug Howard and James Wong and three former FSC scientists who have retired.

Another FSC technology that has been licensed is a field-portable Solid Phase MicroExtraction (SPME), or chemical sponge, that was licensed to Field Forensics of St. Petersburg, Fla.

SPME is a chemical analysis technique that was previously limited to labs because of its fragility. LLNL scientists made the technology more robust, so it could be used in the field.

"SPME permits the absorption of volatile organic chemicals and allows them to be directly injected into a GC-MS system without any sample preparation, which is a real time-saver," Nunes said.

The capability of using SPME in the field was developed by Nunes, Fred Kelly and Brian Andresen, who has retired from LLNL.

— STEPHEN WAMPLER

### ON THE COVER:

Once a swipe from a Lab-developed explosives screening technology is exposed to explosives, replaced in its card and a glass vial is popped, the swipe changes color to indicate the presence of explosives.





## SCIENCE NEWS

# Pathogen informatics team's work pays dividends

By Charles Osolin  
Newsline staff writer

Just as every human has a unique set of fingerprints, every disease-causing microbe has one or more unique genetic "signatures" that can be used to identify it. For the last six years, a team of Livermore researchers has specialized in finding those signatures and making them available to help in the detection and diagnosis of a variety of human and animal pathogens.

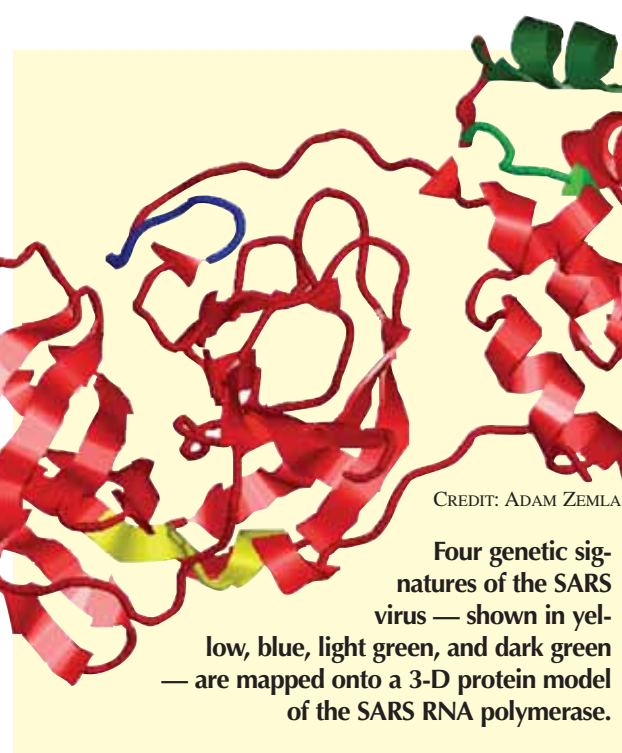
The work of the pathogen informatics team in LLNL's Biosciences Directorate paid rich dividends recently, when a Livermore signature of the peculiar virus that causes Severe Acute Respiratory Syndrome, or SARS, contributed to a landmark study of SARS in non-human primates.

The U.S. Army Medical Research Institute of Infectious Diseases (USAMRIID) used the LLNL signature to detect the SARS virus in the body fluids of long-tailed macaque monkeys over a period of several weeks after they were infected. The paper describing the study appears in the May issue of the journal *PLOS Medicine* (<http://medicine.plosjournals.org/perlserv/?request=get-document&doi=10%2E1371%2Fjournal%2Epmed%2E0030149>).

The research will help in the development of effective SARS vaccines and therapies.

The LLNL team began analyzing the SARS virus shortly after a sudden outbreak of the disease was reported in Asia three years ago. Using a map of the virus's genome provided by the U.S. Centers for Disease Control and Prevention (CDC), the team of biologists, mathematicians and computer scientists designed an initial set of potential signatures of the virus in just three hours.

Working with a Laboratory-developed computational DNA signature design system called KPATH, the



team eventually produced 100 potential signatures as additional SARS isolates were sequenced — three of which were verified in laboratory testing by the CDC and USAMRIID.

More recently, the LLNL team has analyzed the results of a Chinese study of the genomes of four SARS strains found in horseshoe bats. "The availability of this near-neighbor to human SARS allows us now to hone in on the exact region (of DNA) that differentiates the two species," said Tom Slezak, who leads the LLNL pathogen bioinformatics team. "Only nine candidate signatures now are thought to uniquely define the current human SARS virus, and six of

these are found on genes that are thought to determine the host range of the virus," Slezak said. "This information has now been passed to our CDC and USAMRIID collaborators."

Under a broad memorandum of understanding (MOU) between CDC and the Laboratory, LLNL has assisted the CDC with analysis on SARS, monkeypox, brucella, avian influenza and other pathogens of concern. As part of this MOU, Slezak said, "LLNL now has exclusive access to mine DNA signatures from more than 150 CDC-sequenced genomes that have not yet been publicly released."

Livermore's KPATH system is a fully automated DNA-based signature "pipeline," capable of delivering microbial signature candidates spanning 200- to 300-plus base pairs of DNA in minutes to hours. KPATH works by comparing the genome of the target pathogen to a continuously updated library of microbial genomes, searching for those areas that are unique to the target organism.

Slezak and senior biologist Beth Vitalis were co-authors on the USAMRIID SARS paper. Clinton Torres, Marisa Lam, Shea Gardner and recent retiree Tom Kuczmariski of the Computation Directorate and Jason Smith of Biosciences contributed to the SARS work and built the tools for the KPATH system. Carol Zhou and Adam Zemla of Computation provided annotation of the SARS signatures and developed 3D models of the SARS polymerase, the enzyme that helps catalyze the reproduction of DNA. Four of the genetic signatures are mapped onto the 3D protein model of the SARS RNA polymerase.

## Summer students will soon arrive to support Lab research projects

Summer is around the corner. In Livermore, that means soaring temperatures, abundant sunshine and the arrival of many summer students to the Lab.

Several hundred students from universities around the nation and the world are expected to come to LLNL prepared to work alongside scientists on a multitude of research projects that will benefit the United States. Students start arriving in late May and continue through July.

For the past five years, the Institutional Education Committee (IEC) — comprised of representatives from across the Lab — has gathered each spring to organize a slate of events, presentations, tours, trips and workshops specifically geared for students.

Barry Goldman, of the University Relations Program and this year's IEC chairperson, says the experience the students will gain while working at the Lab, especially from the research they'll conduct with mentors, will serve as a unique opportunity, something not readily available to them back at their colleges and universities.

In addition to their work, Goldman hopes the students will take advantage of the wide spectrum of events planned by IEC. "It is important for them to learn about other aspects and programs at the Lab. We never know what impact these experiences will have on a student's career," Goldman said.

Organizing this year's field trips and tours are IEC subcommittee members Jackie Zamora (chairperson) and

Marissa Targowski, Nanette Sorensen and Martha Cabatit. Tours of the National Ignition Facility (NIF) and Center for Accelerator Mass Spectrometry (CAMS) will give students a first-hand look at what the Lab has to offer. Also included are trips to the Stanford Linear Accelerator Center in Menlo Park and a popular stop with students — the Joint Genome Institute in Walnut Creek.

"The tours are a must attend for inquisitive minds. Students will get a feel for real science and a zeal for doing research," Zamora states.

New this year is a way for fellow students to meet each other. Goldman is promoting Tuesdays and Thursdays as student lunch days in the Central Café. Tables flagged with balloons will be reserved for

students. "Our hope is to increase their comfort level and make it easy for them to get together."

Also new is the opportunity for undergraduate students to publish their research abstracts through the DOE Office of Science, *Journal of Undergraduate Research*. More information will be available from Goldman during the summer.

The summer student experience culminates on Aug. 10 with the annual poster symposium — a forum for students to experience the art of presenting technical research.

Students and hosts can check the updated list of planned activities on the Web's Student Bulletin Board at <http://education.llnl.gov/sbb/>. In addition, student activities will be posted on *NewsOnline*.



## SCIENCE NEWS

# NIF built on the Laboratory's seismic safety expertise

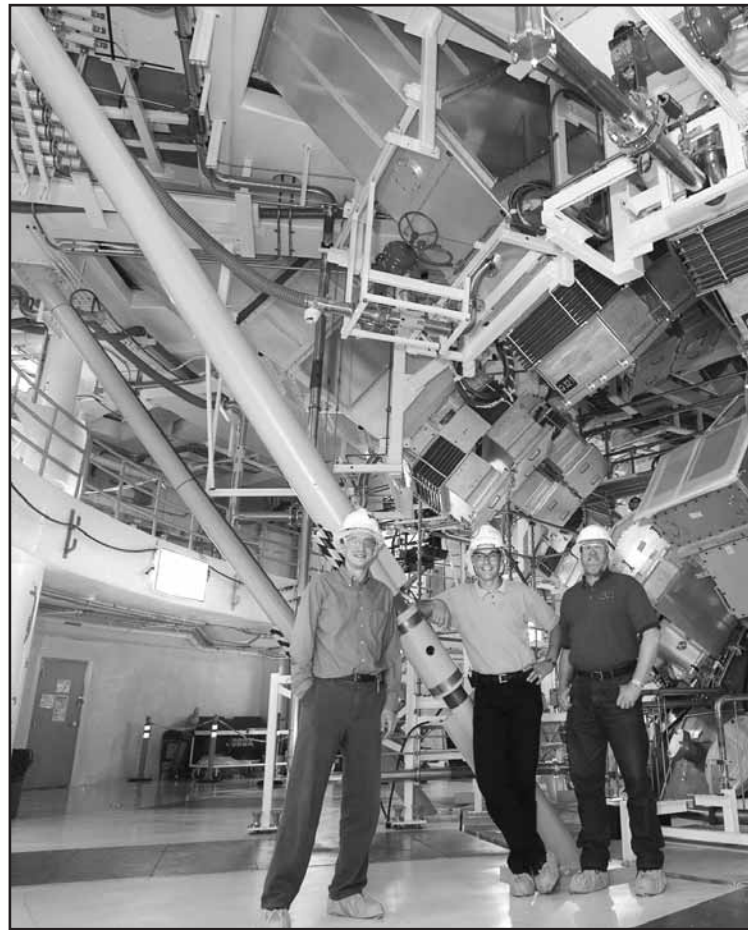
The design and construction of the National Ignition Facility (NIF) demonstrates how far the science of earthquake safety has come in the 100 years since the 1906 San Francisco Earthquake.

"The anniversary of the great earthquake of San Francisco is an opportunity to reflect on how much we've learned and how we've been able to apply our know-how to the design of new buildings and components, as well as strengthening existing structures," said Steve Patterson, associate director for Engineering. "The National Ignition Facility is a fine example of applying the Lab's engineering experience and expertise to earthquake safety."

Laboratory engineers have played a key role in design features of NIF that will help to protect the facility and the components it houses in the event of a temblor; three of those engineers are Stanley Sommer, Dave Trummer and Mike Gerhard.

Beginning in the 1980s, Laboratory engineers Bob Murray, Tom Nelson and Quazi Hossain were instrumental in developing national seismic analysis and design standards while serving on a national committee of the American Society of Civil Engineers. These standards have been applied to the design and construction of NIF, as well as to seismic safety issues throughout the DOE complex.

Seismic engineering expertise has played an important role in the NIF project since its inception. Sommer, Trummer and Gerhard contributed to the design of the NIF laser support structures by performing seismic analyses from the conceptual design review phase of NIF in 1992 to the present. The detailed models developed in the early phase of the project resulted in the configuration for NIF's concrete support structures and the design of structural



JACQUELINE MCBRIDE/NEWSLINE

Stanley Sommer, Dave Trummer and Mike Gerhard stand in front of a NIF target chamber brace, one of the design features of the facility that will help to protect it in the event of a temblor.

steel components.

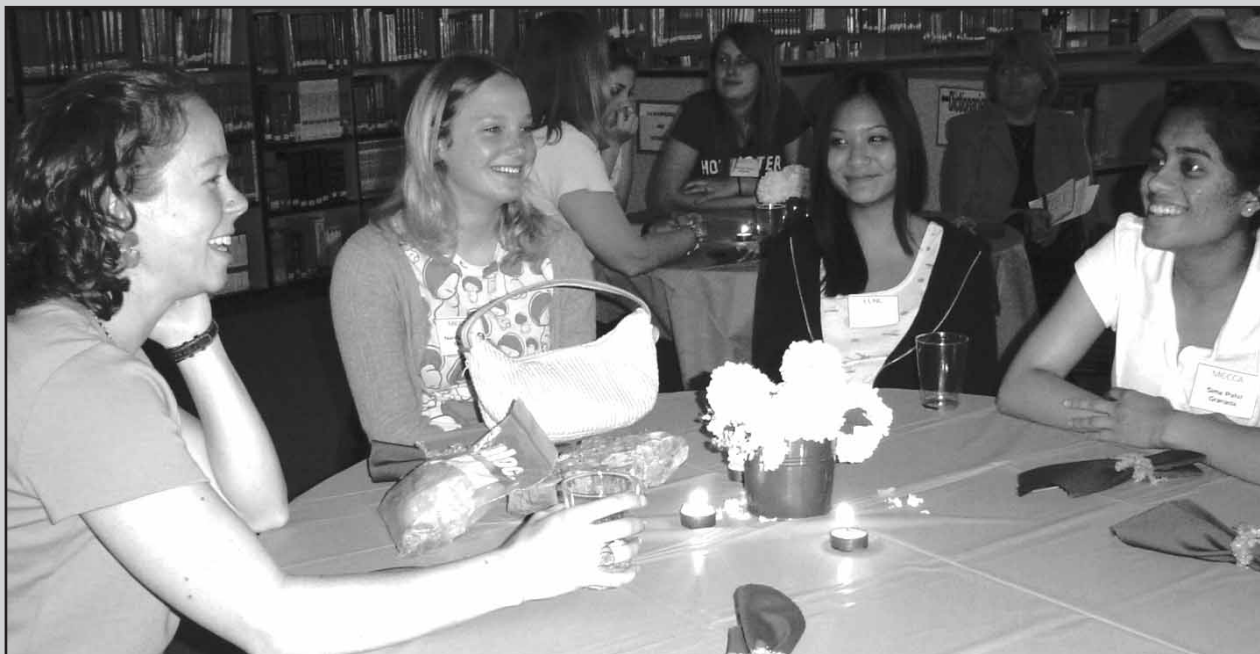
Throughout the design and construction of NIF, numerous computer simulations and seismic calculations have been used to determine the "seismic loads" for structures holding NIF's optical components securely in place and providing information for peer reviews of NIF designs. Murray contributed to seismic analysis and design during five years with NIF (2000 to 2005) by reviewing Mechanical Engineering Safety Notes and conducting design reviews.

"We took the Labs assessment of the ground motion possible at the NIF site (see April 14 *Newsline*) and designed components to survive ground motion from a major earthquake," Murray said. "We have improved awareness of earthquake hazards throughout the NIF project with periodic inspections. This has led to a culture that looks at the potential consequences of earthquakes on every aspect of the project and designs for their effects."

To adequately protect the NIF facility over its life, it is important that the response of the facility to earthquake excitations be thoroughly understood and validated. To address this need, this complex laser facility was instrumented in order to understand its dynamic response when subjected to earthquake ground motions.

Dave McCallen, Murray and Trummer designed and installed a system of 10 seismographs to meet this need. With seismic instrumentation in place, measurement of system response will provide engineers with important data on how the system responds, and would allow engineers to address any identified issues after an earthquake.

## Dinner with a scientist



DICK FARNSWORTH/STEP

Mackenzie Johnson (left), Lab geochemist, talks with aspiring scientists during "Dinner with a Scientist" at Pleasanton's Amador Valley High School this week.

Local high school girls from MECCA (Making Electives Count for Career Achievement) met Wednesday at Pleasanton's Amador Valley High School with Lab women scientists for dinner and discussions on careers in science, technology, engineering and math. Gayle Pawloski of Energy and Environment and Ginny McGaha, MECCA project director, organized "Dinner with a Scientist," bringing together some 50 MECCA students and 10 scientists — Chelle Clements, Colleen Elso, Susan Fortson, Karla Hagans, Cynthia Nitta, Sharon Shields, Cindy Thomas, Janine Taylor and Mackenzie Johnson — who gave the keynote address. The dinner was a result of a grant from the newly formed California Girls Collaborative Project.

## RETIREES' corner

Last August, **Gordon** (Engineering, 1996) and **Esther Longerbeam** celebrated their 50th wedding anniversary by taking their family (their four children, spouses and four grandchildren —14 in all) on a 10-day cruise to Alaska. Their ship left San Francisco, visited Victoria, BC; Sitka, Juneau, Tracy Arm and Ketchikan; and returned to San Francisco. They had wonderful weather, including unthinkably warm weather in Alaska (80 degrees plus), and no rain. They recommend this trip to anyone traveling by cruise with their grandchildren.

**Harry** (Environmental Protection Department, 2001) and **Linda (Nidever)** (Energy & Environmental Directorate, 2003) **Galles** just completed a three-week trip to Vietnam and Cambodia. It was both an interesting and enjoyable experience. They went to many areas of both countries and saw a lot of history. Their entire exciting, unedited story is on the retiree Web page.

**Frank Rainer** (ME, NIF, 2003) and wife recently took an 11-week journey to New Zealand, Antarctica and Australia. The primary emphasis was on visiting the historical huts used by the explorers a century ago around the Ross Ice Shelf region of Antarctica. This region gets about 600 tourists a year as compared to about 25,000 to the Antarctic Peninsula via South America. Fellow tourists included the Norwegian granddaughter of the first explorer (Borchgrevink) to winter over in Antarctica in 1899. It was an emotional experience for her to visit his still-standing winter home there. Their ship helped another Russian ice breaker clear an icy path to the two bases. There is life after NIF as the Rainer's have traveled to over 60 countries in the past three years (over 200 total countries and territories), revisiting every continent for at least the third time. (See the retiree Web page for unedited version.)

May's retiree luncheon will be at noon Wednesday, May 17, at the Elks Lodge in Livermore, 940 Larkspur Drive. (Reservations: [www.llnlretirees.org](http://www.llnlretirees.org)). The speaker will be **Alan Mode**, discussing: "Hello? Hello? Anyone there?" — Communicating After "The Big One."

The Travel Group meeting will be Tuesday, May 23, at 2 p.m. in the Community Room of the Livermore Police Bldg., 1110 South Livermore Ave. **Larry Moon** will discuss the Falkland Islands, South Georgia and Antarctica Peninsula. This represents a change from the published schedule.

Send any input to **Jane or Gus Olson**. E-mail: [augustO@aol.com](mailto:augustO@aol.com) or [JaneRubert@aol.com](mailto:JaneRubert@aol.com). Phone: (925) 443-4349, address: 493 Joyce St., Livermore, CA 94550



## PEOPLE NEWS

### in MEMORIAM

#### Wayne Freeburg

Wayne Freeburg, a Lab retiree, died Feb. 20, at the Veterans Administration Center, Norman, Okla. He was 89.

Freeburg served in the U.S. Navy during World War II. He worked at Site 300 for 18 years, retiring in 1976, and moving to McAlester, Okla. to be near his family. He was a

lifetime member of the Carpenters Union.

He was preceded in death by his wife Wilda, in 1996. He is survived by his sons, Gerald and wife Joyce; Keith and wife Velma; and daughter Yvonne and husband Ernie Wallis; 13 grandchildren; 26 great grandchildren; and 2 great-great grandchildren.

#### Robert Lee Herrick

Robert Lee Herrick, who worked at the Lab as a computer programmer for 38 years before retiring in 1995, died April 20 in Pleasanton. He was 73.

A native of Iowa, he lived in Livermore for 48 years. He was raised in Vallejo.

Herrick served in the U.S. Army during the Korean conflict. He attended UC Berkeley, graduating in 1958 with a degree in mathematics. He later earned a masters degree from California State University, Hayward.

He enjoyed spending time with family, drinking coffee with friends at

The Donut Wheel and reading books, especially those related to World War II and the Korean conflict.

He is survived by his wife of 46 years, Betty Herrick; daughter and son-in-law Sherry Stella and Michael of Pleasanton; sons Bob and wife Ann of Reedley and Jeff and wife Julie of Arlington, Neb.; a sister, Bonita Herrick of Vallejo; and five grandchildren.

Services were held in Livermore. Memorial contributions may be made to St. Charles Catholic Church Building Fund or to the American Cancer Society.

#### Glenn Allen Moxon

Glenn Allen Moxon, a 40-year Lab employee who retired as a senior scientific associate, died after a lengthy battle with brain cancer April 16. He was 75.

He was born on March 25, 1931 in Arcata to Clarence and Grace Moxon, the fifth of six boys. He grew up on the family dairy and attended Bay School and Arcata High School. He briefly attended San Jose State University, where he played football prior to joining the U.S. Navy during the Korean conflict. Upon

his discharge, he married Jeanne Marie Palmer of Arcata and settled in Livermore. Moxon was a partner with his brother in a vineyard near Manteca. He was an avid antique collector and restorer of old farm equipment.

He is survived by his wife of 50 years, Jeanne Marie Moxon; sons, Tim Moxon of Freshwater, Terry Mason of Georgetown, Texas, and Tom Moxon of Blue Lake; and eight grandchildren. Services were held.

## NEWSLINE

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For an extended list of Lab beats and contacts, see <http://www.llnl.gov/pao/contact/>

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## RETIRING? LEAVING THE LAB?

**Stop! Before you throw away your files, contact the Laboratory Archives and Research Center. Your records may be important to the Lab's historical record or need to be kept to meet contract requirements.**

Call Maxine Trost Laboratory Archivist  
2-6539 or [trost5@llnl.gov](mailto:trost5@llnl.gov)





# LLNL's wild side

The wildlife found at LLNL's Livermore site today includes a core of remnant native grassland and riparian species, in addition to exotic species introduced to the area through human influence. In spring, these animals become more active, and interactions between wildlife and people become more common. Wildlife is not restricted by the boundaries of this site, and our actions at this site influence not only the wildlife here but also the grassland and riparian ecosystems beyond the site boundaries. Please follow the simple guidelines listed below to insure the Livermore site wildlife does not become a nuisance to the human inhabitants of the site, and that we reduce our impacts to the wildlife here and in the surrounding ecosystems. For more information on Livermore site wildlife, visit the walking tour around the Drainage Retention Basin near the Central Cafeteria.

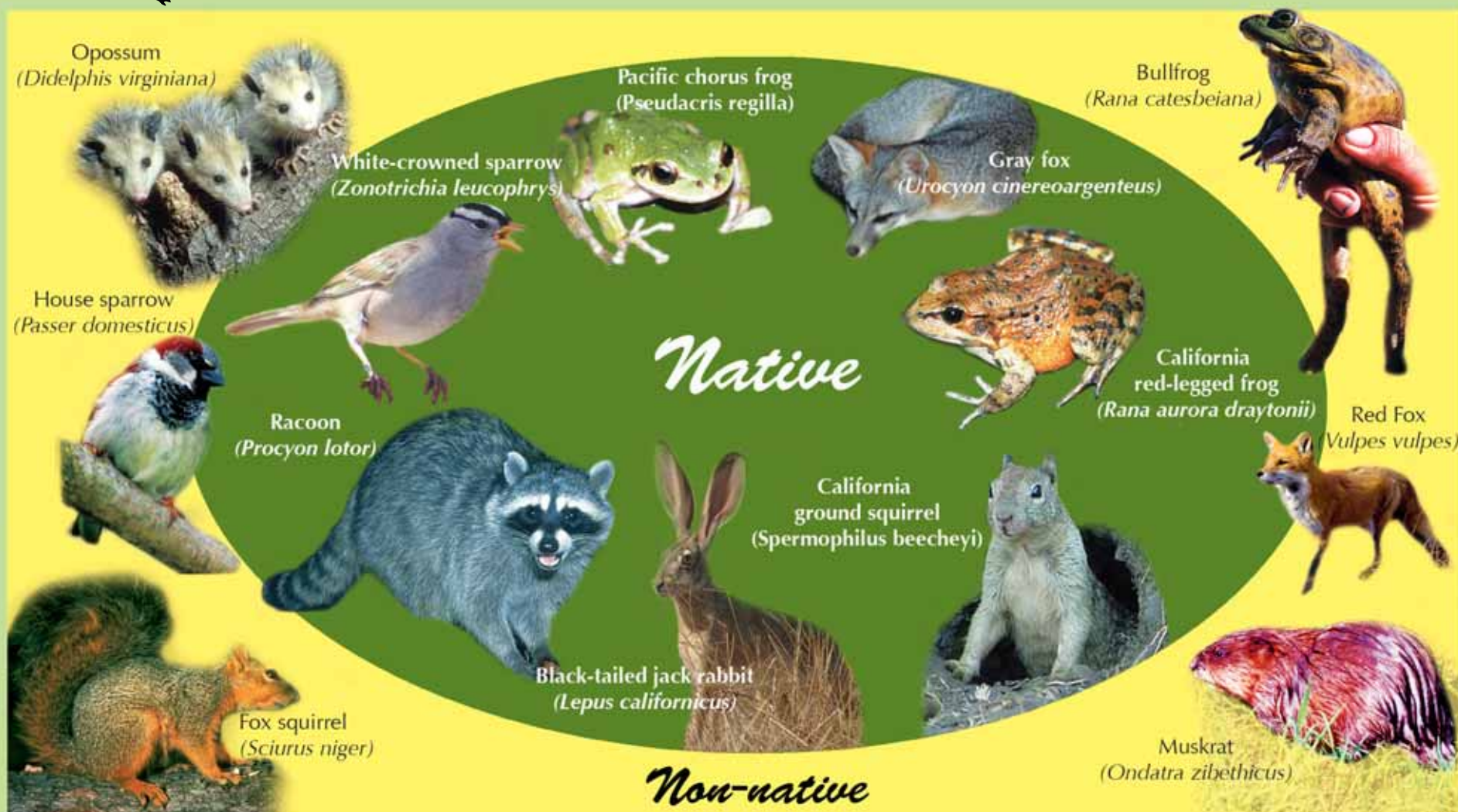


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**Livermore site wildlife guidelines:** 1) Only observe wildlife from a distance; 2) Feeding wild animals causes them to be unnaturally accustomed to interactions with people and can lead to aggressive behavior; never feed wild animals or leave food where it can be accessed by wild animals; 3) Introducing exotic or domestic species to any environment can have serious consequences. Captive wildlife or pets should not be released or relocated.



## Cinco de Mayo

Employees celebrated Cinco de Mayo a day early last week during Amigos Unidos annual fiesta. Authentic food including carnitas, chile colorado and tamales were on sale with proceeds going toward the Amigos Unidos scholarship fund.

Tribu played traditional Aztec music with authentic indigenous instruments. The event was sponsored by Amigos Unidos and the Work-Life Center.

JACQUELINE MCBRIDE/NEWSLINE



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